

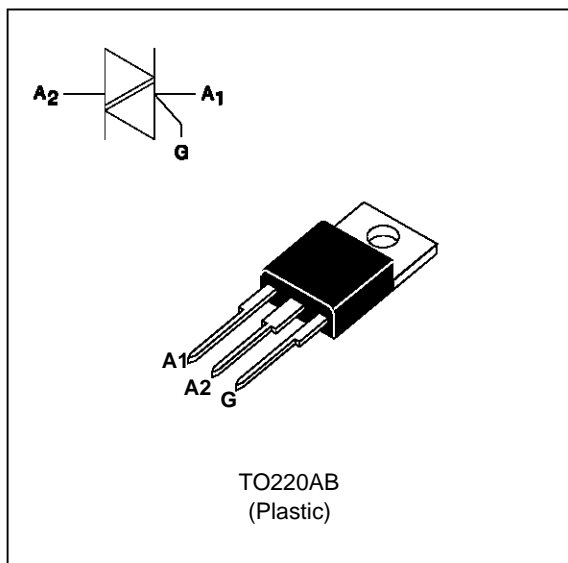
LOGIC LEVEL TRIACS

FEATURES

- LOW $I_{GT} = 5\text{mA max}$
- LOW $I_H = 15\text{mA max}$
- HIGH EFFICIENCY SWITCHING
- BTA Family :
INSULATING VOLTAGE = $2500V_{(RMS)}$
(UL RECOGNIZED : E81734)

DESCRIPTION

The BTA/BTB06 TW/SW use high performance products glass passivated chips. The low I_{GT} / I_H level coupled with the high efficiency circuit make this family will adapted for low power trigger circuits (microcontrollers, microprocessors, integrated circuits ...)



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	BTA	$T_c = 80\text{ °C}$	6	A
		BTB	$T_c = 90\text{ °C}$		
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)		$t_p = 8.3\text{ ms}$	63	A
			$t_p = 10\text{ ms}$	60	
i^2t	i^2t value		$t_p = 10\text{ ms}$	18	A^2s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 50\text{mA}$ $di_G/dt = 0.1\text{A}/\mu\text{s}$		Repetitive $F = 50\text{ Hz}$	20	$A/\mu\text{s}$
			Non Repetitive	100	
T_{stg} T_j	Storage and operating junction temperature range			- 40 to + 150 - 40 to + 110	$^{\circ}\text{C}$ $^{\circ}\text{C}$
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			260	$^{\circ}\text{C}$

Symbol	Parameter	BTA / BTB06-			Unit
		400 TW/SW	600 TW/SW	700 TW/SW	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 110\text{ °C}$	400	600	700	V

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-a)	Junction to ambient		60	°C/W
Rth (j-c) DC	Junction to case for DC	BTA	4.4	°C/W
		BTB	3.3	
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	BTA	3.3	°C/W
		BTB	2.5	

GATE CHARACTERISTICS (maximum values)

PG (AV) = 1W PGM = 10W (tp = 20 μs) IGM = 4A (tp = 20 μs) VGM = 16V (tp = 20 μs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrant		Suffix		Unit	
				TW	SW		
IGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III	MAX	5	10	mA
VGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III	MAX	1.5		V
VGD	VD=VDRM RL=3.3kΩ	Tj=110°C	I-II-III	MIN	0.2		V
tgt	VD=VDRM IG = 40mA dIG/dt = 0.5A/μs	Tj=25°C	I-II-III	TYP	2		μs
IL	IG=1.2 IGT	Tj=25°C	I-III	TYP	8	15	mA
			II		15	25	
IH *	IT= 100mA gate open	Tj=25°C		MAX	15	25	mA
VTM *	ITM= 8.5A tp= 380μs	Tj=25°C		MAX	1.75		V
IDRM IRRM	VDRM Rated VRRM Rated	Tj=25°C		MAX	0.01		mA
		Tj=110°C		MAX	1		
dV/dt *	Linear slope up to VD=67%VDRM gate open	Tj=110°C		MIN	20	50	V/μs
(di/dt)c *	dV/dt= 0.1V/μs	Tj=110°C		MIN	2.7	3.5	A/ms
	dV/dt= 20V/μs			MIN	1.3	2.7	

* For either polarity of electrode A2 voltage with reference to electrode A1.

ORDERING INFORMATION

Package	$I_T(\text{RMS})$	$V_{\text{DRM}} / V_{\text{RRM}}$	Sensitivity Specification	
	A	V	TW	SW
BTA (Insulated)	6	400	X	X
		600	X	X
		700	X	X
BTB (Uninsulated)	6	400	X	X
		600	X	X
		700	X	X

Fig.1 : Maximum RMS power dissipation versus RMS on-state current ($F=50\text{Hz}$).
(Curves are cut off by $(di/dt)_c$ limitation)

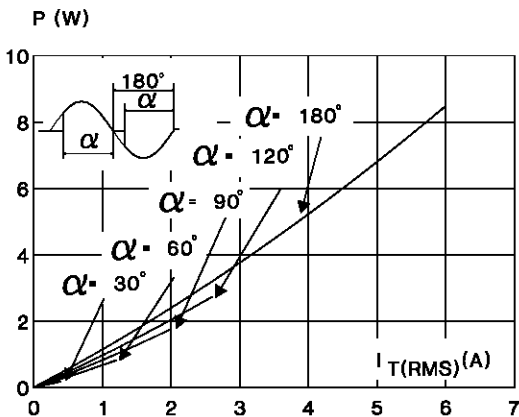


Fig.3 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTB).

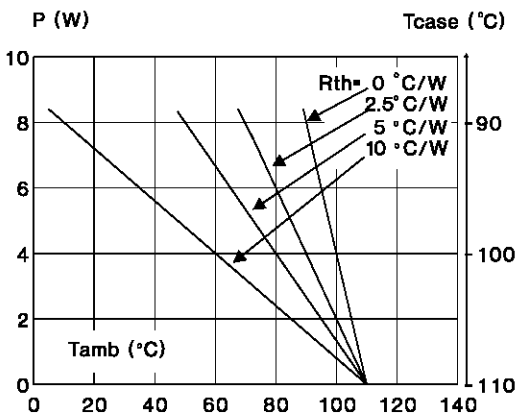


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTA).

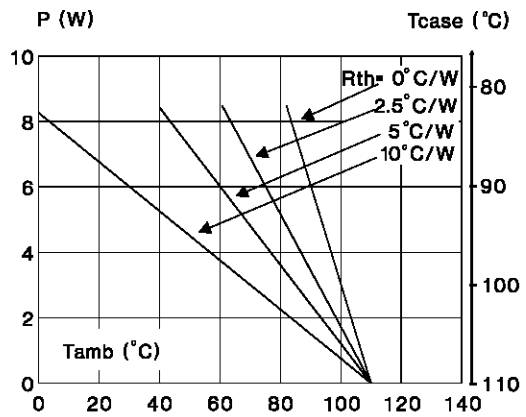


Fig.4 : RMS on-state current versus case temperature.

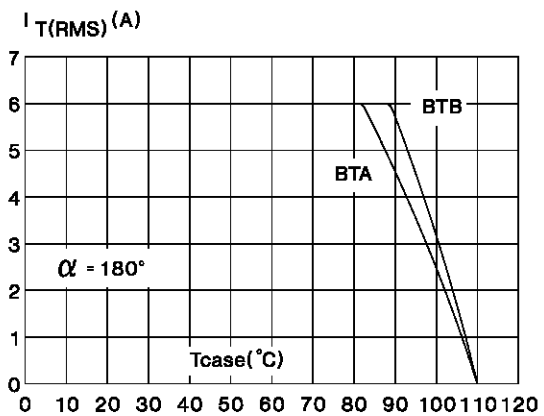


Fig.5 : Relative variation of thermal transient impedance versus pulse duration.



Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

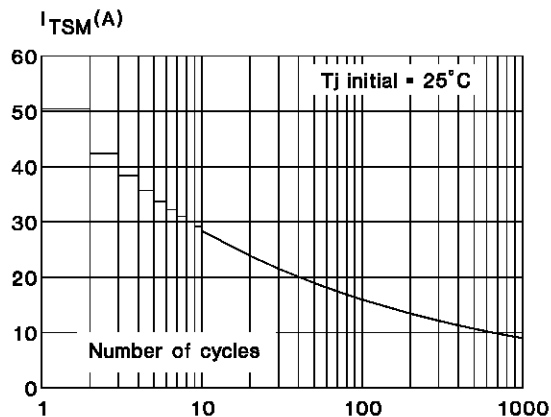


Fig.9 : On-state characteristics (maximum values).

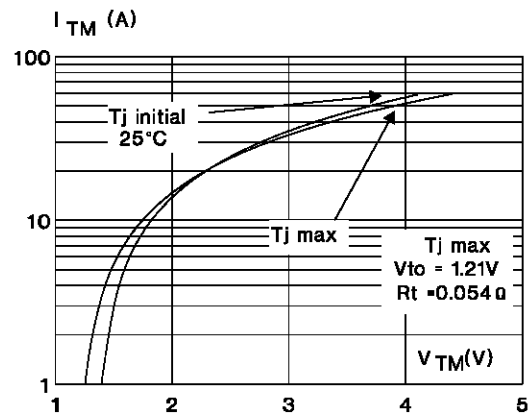


Fig.6 : Relative variation of gate trigger current and holding current versus junction temperature.

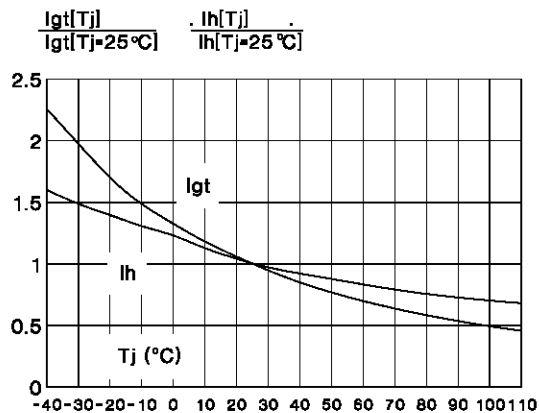


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

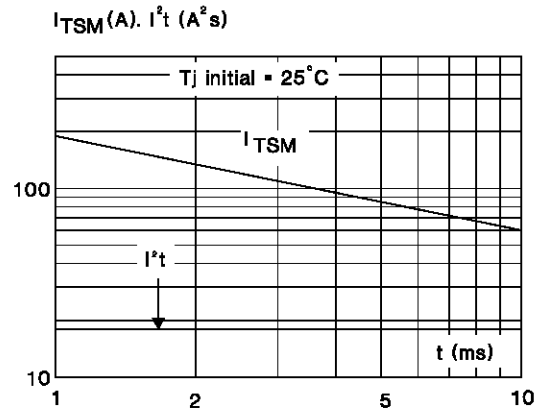
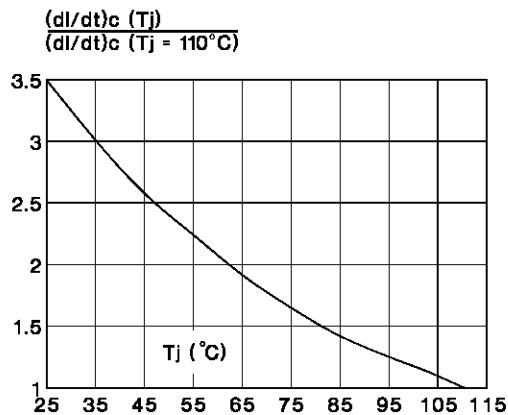
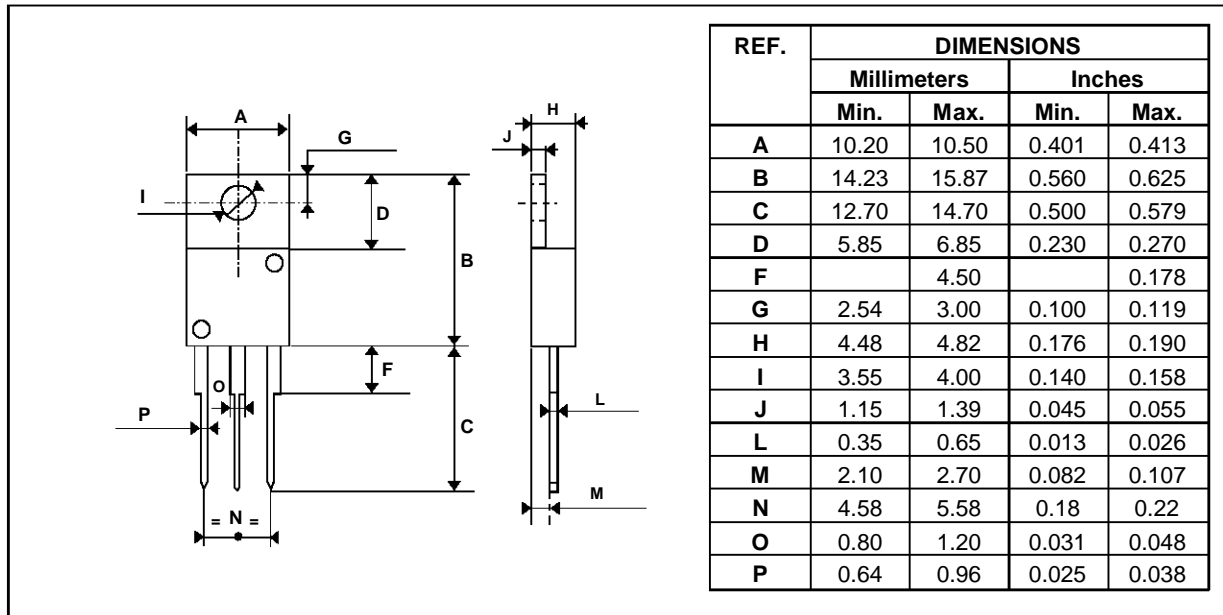


Fig.10 : Relative variation of $(di/dt)c$ versus junction temperature.



PACKAGE MECHANICAL DATA

TO220AB Plastic



Cooling method : C
 Marking : type number
 Weight : 2.3 g
 Recommended torque value : 0.8 m.N.
 Maximum torque value : 1 m.N.

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